

REMARKS

Applicants have amended Claim 1. Claims 4-8 and 12 were previously cancelled. Accordingly, Claims 1-3, 9-11 and 13-15 are pending.

An unexecuted Declaration under 37 C.F.R. § 1.132 by Dr. Pieter L. Buwalda accompanies this Amendment. An executed copy will follow shortly.

Amendment to the Specification

A typographical error appears on page 8, line 27, of the instant specification (Example 1). The amount of the starch mixture in line 27 should read 600 grams, instead of 400 grams. This typographical would be readily apparent to a skilled artisan. In particular, Example 1 calls for preparation of a mixture comprising 400 grams of native potato starch and 200 grams of pregelatinized starch. (See page 8, lines 22-25.) Thus, the amount of the resulting mixture is clearly 600 grams. Also, paragraph 6 of the accompanying Declaration under 37 C.F.R. § 1.132 discusses this typographical error.

Rejection under 35 U.S.C. § 112 (first paragraph)

The Examiner has rejected Claim 1 under 35 U.S.C. § 112 (first paragraph) as failing to comply with the written description requirement. In particular, the Examiner states that “the limitation of ‘thereby expanding said composition’ is not supported by the original disclosure... There is not [*sic*] disclosure that the heating to above the glass transition temperature causes the expanding of the composition.” (Office Action page 2, second paragraph.)

There is a causal relationship between heating to above the glass transition temperature and the expansion of the composition. See paragraph 3 of the accompanying Declaration under 37 C.F.R. § 1.132.

Also, the present specification provides support for this causal relationship. In particular, see page 3, lines 14-21, of the specification. The relevant portion of this section is reproduced here.

The invention provides a method for obtaining an expanded foodstuff having improved expansion characteristics comprising preparing a composition... heating at least part of said composition to a temperature above its glass transition temperature, i.e. expanding said heated composition and letting it cool to below said glass transition temperature. (Emphasis added.)

In other words, the composition is prepared by heating, i.e. expanding. The abbreviation “i.e.” stands for the Latin phrase “id est.” The Latin phrase “id est” means “that is.” The abbreviation “i.e.” is used for clarification. Applicants have enclosed Exhibit A which shows the meaning of the abbreviation “i.e.” In the context of the present specification, expansion accompanies heating.

However, in order to expedite prosecution, Claim 1 has been amended to replace the phrase “thereby expanding said composition” with the phrase “wherein said composition is expanded.” Accordingly, Applicants request withdrawal of this rejection.

Rejections under 35 U.S.C. § 103

The Examiner has rejected Claims 1-3, 9-11 and 13-15 as being obvious over U.S. Patent No. 4,409,250 (van Hulle et al.) in view of Jeffcoat et al.

The Examiner states that van Hulle et al. disclose methods for preparing puffed snack products “from gelatinized doughs whose total amylopectin starch content ranges between

about 30-95%.” The Examiner states that “the method comprises the steps of mixing amylopectin starch together with other ingredients to form a dough, cooking the dough in an extruder to gelatinize the dough, shaping the dough into pieces, drying the pieces and puffing the pieces.” (See Office Action page 2, last paragraph.) The Examiner concedes that “[v]an Hulle et al. do not disclose the amylopectin starch is non-cereal amylopectin starch...” (See Office Action page 3, first paragraph.) In an attempt to remedy this deficiency in van Hulle et al., the Examiner states that Jeffcoat et al. disclose cross-linked waxy potato starch.

Thus, the Examiner seems to consider the cooking of the dough in an extruder to achieve gelatinization disclosed by van Hulle et al. to be equivalent to the step of heating to above the glass transition temperature as required by the present invention. Applicants respectfully disagree with the Examiner’s analysis, as discussed below.

As pointed out by the Examiner, in the procedure described by van Hulle et al., dough containing pregelatinized starch is **cooked in an extruder under pressure**. For example, cooking takes place at a pressure of 100 to 200 p.s.i.g. (See column 7, lines 21-24, of van Hulle et al.) Since the dough is in an extruder, the methods of van Hulle et al. do not allow for expansion of the dough while heating. (See paragraph 3 of the accompanying 1.132 Declaration.)

In contrast, the present invention provides a method of obtaining a heated-expanded dough. The method comprises heating a foodstuff which comprises a non-cereal amylopectin starch to a temperature above the glass transition temperature of the starch. The heating step of the present invention does not take place in an extruder thereby allowing the dough to expand. After expansion, the foodstuff is cooled to below the glass transition temperature.

Therefore, clearly the heating step of van Hulle et al. and the heating step of the present invention are not equivalent. That is, cooking in an extruder under pressure cannot result in, or for that matter be accompanied by, expansion. Thus, the process of gelatinization

disclosed in van Hulle et al. is not equivalent to, nor suggestive of, heating starch to above the glass transition temperature.

Also, according to Dr. Buwalda, prior to heating, the dough of van Hulle et al. has an airy texture. He states that this texture is due to air bubbles being entrapped in the dough. In contrast, according to Dr. Buwalda, the initial dough composition of the present invention is non-aerated and glassy. Thus, unlike in the procedure of van Hulle et al., in the methods of the present invention, the expansion is not realized in the initial dough composition, but instead during the heating, i.e. during frying or baking. (See paragraph 3 of the 1.132 Declaration.)

Additionally, Jeffcoat et al. teach away from using amylopectin potato starch in the methods of the present invention.

The objective of the present invention is the expansion of a dough product. Jeffcoat et al. show that amylopectin potato starch derivatives are much higher in viscosity than waxy maize derivatives (see col. 2, lines 30-35 and 43-48, as well as Fig. 1 and Tables II and III). As stated by Dr. Buwalda, "It is generally understood to those skilled in the art that expansion is inversely related to viscosity (the higher the viscosity, the lower the expansion)." (See paragraph 4 of the accompanying 1.132 Declaration.)

Therefore, it would have been expected that use of an amylopectin potato starch as disclosed by Jeffcoat et al. in the procedure of van Hulle et al. would lead to reduced expansion when compared to the use waxy maize starch or regular potato starch. Accordingly, Jeffcoat et al. teach away from using amylopectin potato starch when a dough composition with greater expansion is desired.

Moreover, even if the two teachings were to be combined, the present invention would not be obtained. As discussed above, the method of van Hulle et al. is different from the method of the present invention.

Furthermore, the degree of increase in expansion in the dough products using a non-cereal starch having an amylopectin content of at least 90 wt.% is surprising. That is, it is surprising that a non-cereal starch having such an amylopectin content would result in such a significant improvement in expansion behavior.

Examples of these surprising properties are demonstrated in the specification. For example, see page 10, line 20, to page 11, line 6, of the present specification. In Table 1, a comparison of two foodstuffs, Foodstuff 3 and Foodstuff 4, is presented. Foodstuff 4 consists of amylopectin potato starch. Foodstuff 3 includes amylopectin potato starch along with waxy maize starch. The substitution of the potato starch for the maize starch (a cereal starch) substantially increased the crispness and expansion of the final product. In particular, crispness was increased from a 5 to an 8. Expansion was increased from a 6 to an 8. Also, the volume of the foodstuff was increased from 520 ml to 650 ml. An explanation of these results is discussed in the accompanying 1.132 Declaration.).” (See paragraph 5 of the accompanying 1.132 Declaration.)

To recap, the methods of van Hulle et al. are different from the methods of the present invention. Thus, even if amylopectin potato starch were to be used in the methods of van Hull et al., the results of the present invention would not be achieved. Moreover, Jeffcoat et al. teach away from using amylopectin starch in methods in which the expansion of dough is desired. Furthermore, the degree of expansion of dough achieved by the methods of the present invention is surprising.

Independent Claim 9 of the present invention recites a heated-expanded foodstuff

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comprising a non-cereal amylopectin starch. As discussed above, neither van Hulle et al. nor Jeffcoat et al. disclose the preparation of compositions as described in the present application. Thus the cited prior art references cannot disclose the heat-expanded non-cereal amylopectin starch foodstuff products recited in Claim 9.


Accordingly, Applicants request that the obvious rejection be withdrawn.

Applicants respectfully submit that the application, including Claims 1-3, 9-11 and 13-15, are now in proper form for allowance, which action is earnestly solicited. If resolution of any remaining issue is required prior to allowance of this application, it is respectfully requested that the Examiner contact Applicants' undersigned attorney at the telephone number provided below.

Respectfully submitted,

Susan A. Sipos
Registration No.: 43,128
Attorney for Applicants

HOFFMANN & BARON, LLP
6900 Jericho Turnpike
Syosset, New York 11791
(516) 822-3550
SAS:sbs
193217


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Web

Definitions of i.e on the Web:

"that is" (Latin: "id est"). N.B.: Avoid this. Use it only in parenthetical asides (i.e., asides like this one) and then only to clarify a point. Do not confuse with "e.g.". Also see "cf."
www.lpi.org/scripthelp/tips/wordlist.html

Abbreviation for id est (latin) meaning "in other words."
www.westp2net.org/hazwaste/app/glossary.html

['I-'E] abbreviation. that is, in other words (from the Latin id est) e.g. ['E-'jE] abbreviation. for example (from the Latin exempli gratia).
www-personal.umich.edu/~beckerjb/definitions.html

id est = that is, it is
herkules.oulu.fi/isbn9514259882/html/g37.html

– that is, from the Latin id est.
westlake.k12.oh.us/whs/english/StyleManual/Glossary.htm

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